Claims

1 A method of producing a structured hard chrome layer, wherein chromium is deposited from an electrolyte onto a workpiece, said electrolyte containing:

(a) a Cr (VI) compound in an amount corresponding to 50 g/l to 600 g/l of chromic acid anhydride;
(b) 0.5 g/l to 10 g/l of sulphuric acid;
(c) 1 g/l to 20 g/l of aliphatic sulphonic acid, comprising 1 to 6 carbon atoms, and
(d) 10 g/l to 200 g/l of at least one compound forming a dense cathode film, said compound being selected from among ammonium molybdate, alkali molybdate and alkaline earth molybdate, ammonium vanadate, alkali vanadate and alkaline earth vanadate, ammonium zirconate, alkali zirconate and alkaline earth zirconate.

2. The method as claimed in claim 1, wherein the Cr (VI) compound is CrO_3.

3. The method as claimed in any one of the preceding claims, wherein the aliphatic sulphonic acid is methane sulphonic acid.

4. The method as claimed in any one of the preceding claims, wherein the compound forming a dense cathode film is $(NH_4)_6Mo_7O_{24} \cdot 4\ H_2O$.

5. The method as claimed in any one of the preceding claims, wherein the electrolyte contains substantially no fluorides.

6. The method as claimed in any one of the preceding claims, which comprises working with a current density of from 20 A/dm^2 to 200 A/dm^2.

7. The method as claimed in any one of the preceding claims, which comprises working with a cathodic current yield of 12% or less.

8. A structured hard chrome layer, obtained by the method according to one of claims 1 to 7.

9. An electrolyte, containing
(a) a Cr (VI) compound in an amount corresponding to 50 g/l to 600 g/l of chromic acid anhydride
(b) 0.5 g/l to 10 g/l of sulphuric acid;
(c) 1 g/l to 20 g/l of aliphatic sulphonic acid, comprising 1 to 6 carbon atoms, and

(d) 10 g/l to 200 g/l of at least one compound forming a dense cathode film, said compound being selected from among ammonium molybdate, alkali molybdate and alkaline earth molybdate, ammonium vanadate, alkali vanadate and alkaline earth vanadate, ammonium zirconate alkali zirconate and alkaline earth zirconate,

for carrying out the method according to any one of claims 1 to 7.